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ODP # 0-384

Washington, D.C. 20505

Resource Management Staff

IHC/MM 80-2408
26 March 1980

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MEMORANDUM FOR: Director of Central Intelligence

VIA: Deputy to the DCI for Resource Management

FROM: [REDACTED]
Director, Information Resources Office

STATINTL

SUBJECT: Project SAFE

REFERENCE: A. Your memo of 21 March, Subject: Concern
Regarding SAFE (Tab A)
B. Memo from [REDACTED], Chairman, STAP
to DCI dtd 18 Mar 1980, Subject: Questions
Regarding SAFE (Tab B)

1. I appreciate the opportunity to comment on the issues raised by the STAP Panel in connection with the SAFE Project. As background to our comments, I should point out that last year, after discussions between the D/DCI/RM, the DDCI, and DDA, it was determined that the focus of our interest in SAFE was to be "the areas of resource allocation and the relationship of SAFE to other programs on a Community-wide basis."* Although we have continued to review the development of Project SAFE, our primary attention has been in accordance with the above quoted limitations. Consequently, we are not prepared to comment, except in general terms, on many of the concerns raised in the referenced STAP memorandum.

2. Of the four principal concerns listed in your memo of March 21st, only one falls within the scope of IRO's responsibility as set forth in paragraph 1 above, namely:

"What actions are underway to ensure that the Intelligence Community has access to CIA SAFE and that CIA SAFE has access to DIA SAFE as well as such systems as COINS and SOLIS?"

*Memo from DDCI to D/DCI/RM dated 16 March 1979, Subject: Project SAFE

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3. It is appropriate that your concerns along these lines be addressed because:

- o At the DCI's semiannual review in May 1979, it was stated that a direct physical link between the DIA and CIA systems would be provided.
- o Our review of the current version of the System Requirements Specifications indicates that such a communications connection between CIA and DIA SAFE systems is not included in the specifications.
- o I have discussed this deficiency to the attention of the SAFE Project Manager and he states that such a requirement will be added by amendment; that, although this has not yet been accomplished, such an amendment will be prepared in the near future.

4. We believe that it is crucial to the ultimate development of the types of intercommunication which are set out in your subject memorandum that this requirement be now formalized in the SAFE documentation since, if properly specified, it will provide the technical capability to enable:

- o CIA analysts to access DIA files.
- o CIA analysts to access other Community files through the DIA SAFE interface with the COINS network which is included in the current requirements documents.
- o DIA analysts to access CIA SAFE files.
- o Analyst to analyst communications between DIA and CIA analysts.
- o The capability to permit other Intelligence Community components to access CIA SAFE facilities by going through the DIA interfaces with the COINS or AUTODIN networks.

5. It should be noted that the provision of the physical links and the technical capabilities to accomplish the above listed functions will not, in and of itself, result in the implementation of any of these functions. None of the SAFE documentation, either emanating from DIA or CIA, calls for these functions to be provided. Indeed, the original CIA SAFE documentation specifically provides that the CIA SAFE system will be a closed system accessible only by CIA personnel. The position has been taken by some that CIA has no validated requirement for access to any non-CIA system, including DIA SAFE. The results of

the IHC-sponsored Analyst Support Study indicate that this is probably not the case. Nearly half of the CIA analysts interviewed said they regularly access outside data bases such as SOLIS, the COINS files, CIRC II, and the NPIC data system. Furthermore, analyst-to-analyst communication across agency lines was ranked the second most important source of information by CIA analysts and the most important source by DIA analysts. As automated systems develop and improve and analysts become increasingly confident in their use of and reliance upon direct access to automated systems, requirements for and the value of access to external systems should increase still further.

6. The management of the Consolidated SAFE Project Office is working under a handicap in this area. There has been, to our knowledge, no extensive formal review or update of CIA's functional requirements on the user side since the decision was made to combine the two programs. Without any formal statement of requirements from the CIA analytical community (primarily NFAC) which the system is designed to support, it is difficult for those charged with designing and implementing the system to anticipate what those needs may be. Therefore, we suggest that either you or some other appropriate authority should give to the SAFE Project Office some appropriate guidance which addresses these areas of concern.

7. We would call to your attention the fact that providing any access to the CIA system from DIA and more especially from elements of the Intelligence Community outside of DIA raises serious security issues. The resolution of these issues will probably require action on your part to modify the present interpretation of existing security policies, or in some cases amendments thereto. If you should decide that the combined SAFE systems should provide the types of intercommunication and outside access which are outlined in your areas of concern, then someone (possibly the Computer Security Subcommittee of the DCI Security Committee) should probably be tasked with the responsibility of defining the security issues, suggesting possible solutions, and performing appropriate risk analyses so that they may be submitted to you for resolution. If this is undertaken, IRO should probably be involved in some way since decisions on these issues will undoubtedly have major long-term effects on the feasibility of improving the interagency exchange of information and could also have a substantial impact on the resources which will be needed to satisfy Community ADP requirements.

8. General comments on other concerns expressed by you based upon our limited perspective are:

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- o We are informed that [] of OCR is coordinating the CIA user interface with the CSPO; that he is completely aware of the status of the project and consults regularly with the CSPO.
- o In the development of a project such as SAFE, it is extremely important that a well defined single point of contact between the users and developers be established and maintained. Otherwise, the system developers will be faced with conflicting statements of requirements.
- o If, in fact, the established lines of communications with the users are not adequate, perhaps the reason is attributable to a lack of an effective framework within NFAC to provide a continuing review of SAFE as it develops. If this is the case, we are not aware of it.
- o We see no evidence that "major portions of the proposed operational capabilities are unspecified." It is, however, probably true that NFAC should direct more attention to the general issue of what its requirements for open source material are and how these should be met, either through SAFE or other means.
- o The decision to place SAFE on a design-to-cost basis necessarily implied some scaling down of the original requirements for the initial version. In consonance with this, NFAC did review and set priorities on the original SAFE requirements.
- o It is our assessment that the CSPO is proceeding with development so that NFAC's highest priorities will be met first and the design will accommodate the later addition of those functions which now enjoy a lesser priority.
- o If some of the capabilities which this approach will require to be deferred are considered to be important enough to warrant it, NFAC should develop a justification for their inclusion in the initial version of SAFE and the issue should be addressed during program review.

9. In conclusion, I would take this opportunity to inform you of two initiatives we are taking in conjunction with the IHC which may have an impact on the future development of SAFE.

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- o The development of a user language for SAFE will result in a common user language for DIA & CIA. We are exploring the possibility that this could become the initial step for developing user language standards for use throughout the Community. This will require the cooperation of the SAFE Project Office if it is to succeed.
- o We expect the IHC to recommend the development of a distributed system of bibliographic information storage and retrieval systems. If this is to be done, the facilities of both the DIA & CIA SAFE systems in this area will have to function as part of an overall Community system. If this is to be accomplished, the interconnection of the two systems could take on added importance.



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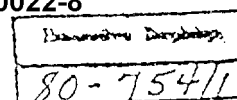
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21 March 1980

MEMORANDUM FOR: Deputy Director for National Foreign Assessment
Deputy Director for Administration
Director of Data Processing

FROM: Director of Central Intelligence

SUBJECT: Concerns Regarding SAFE

1. One of the subjects addressed at the recent Science and Technology Advisory Panel (STAP) meeting was the SAFE system and its implementation. Several concerns were expressed at the meeting regarding SAFE, including the fact that there are no plans at present to connect CIA and DIA SAFE systems so that they are mutually accessible. I share several of the concerns expressed by the Science and Technology Advisory Panel, and accordingly would like to meet with you to address several of the issues that were raised by the Panel. I attach for your information and response a list of questions and concerns prepared by the STAP relating to SAFE. While I would appreciate your being prepared to address all of these questions at our meeting, I personally am especially concerned about the following:

-- What actions are under way to ensure that the Intelligence Community has access to CIA SAFE and that CIA SAFE has access to DIA SAFE as well as such systems as COINS and SOLIS?

-- How will SAFE deal with open source material?

-- As described in some detail on page 3 of the STAP paper, what actions are being taken to identify the real needs of the SAFE user community and will they be satisfied by the system?

-- How can CIA make a reasonable evaluation of the current status of SAFE with major portions of the proposed operational capabilities either unspecified or not communicated to the Agency?

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2. I will schedule a meeting to discuss these issues toward the end of next week. In the meantime, I would appreciate your responding to all of the questions in the attached paper and providing such responses to me by the middle of next week for my use in preparation for the meeting.


STANSFIELD TURNER

Attachment a/s

cc: DDCI
DDS&T

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DIRECTOR OF CENTRAL INTELLIGENCE
Science and Technology Advisory Panel

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18 MAR 1980

MEMORANDUM FOR: Director of Central Intelligence
Deputy Director of Central Intelligence

FROM:

[REDACTED]
STAP Chairman

SUBJECT: Questions Regarding SAFE

1. In response to your request of March 14, 1980, for comments on the current status of SAFE, I attach a list of eight questions and brief comments that STAP believes should be addressed.

2. STAP is continuing its analysis of the SAFE problem and will prepare an options paper within the next two weeks for your consideration.

Attachments:
As Stated

[REDACTED]

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1.0 What steps are being taken to ensure that the Agency, rather than the contractor is in control of the technical aspects of the design of the system?

The geographic remoteness of the contractor, and the lack of continuing contractor-user interaction can lead to a situation in which the builder of the system also becomes the architect. The absence of reciprocal technical representation, like resident engineers, delays every routine decision and makes larger ones unresponsive to Agency/community needs or technological constraints. Strong Agency technical management is absolutely essential if the system is to satisfy real and evolving agency needs and if it is to be integrated with other Agency and community resources.

2.0 How is SAFE management ensuring that a final working system has been developed from the continuing evolution of an operationally valid pilot system? How has SAFE taken advantage of the experience of similar, very large systems in their:

- 1) system architecture,
- 2) communication and control, and
- 3) changing performance requirements?

How is SAFE management ensuring that the system will:

- 1) make available data on operation and usage of the pilot system to guide development;
- 2) be able to modify both system functions and interaction capabilities so as to meet changing and evolving requirements; and
- 3) be able to add new functions and interactions so as to meet new requirements?

Relevant Experience -- It is well agreed that an information handling system cannot be achieved by a simple Design-Build-Use cycle, no matter how brilliant the design or faithful the building. Consider three (out of many) currently operating very large nets with requirements at least comparable in size and complexity with the Agency/community's:

- 1) the ARPA net,
- 2) the airlines reservation system, and
- 3) the IBM in-house computing net.

All of these systems evolved - that is, they started as soon as possible with operating pilot systems, so that there was always an operational evaluation of effectiveness. Furthermore, in each case, a primary purpose of the original plans was drastically altered as experience was gained. Even so, developments in concept, hardware, software, and practice are continuing now in greater volume than ever.

2.1 The ARPA Net

The ARPA net was originally conceived by Larry Roberts at the ARPA IPO (Information Processing Office) as a means of netting research computers in order to do distributed computing. The message facility was then a minor function. As message usage rose, packet switching became a powerful tool with wide application elsewhere in the technology. The separate centers in the ARPA net have much independence, subject to some fairly strict requirements for communications protocols and access. This allows competitive development and a common evaluation of new technological developments - e.g., the intelligent terminal is being subjected to widespread experimentation and development.

2.2 Airlines Reservation System

The first automated electronic airfare reservations and ticketing systems were disasters - e.g., SABER, the American Airlines/IBM effort was predesigned and built to an apparently reasonable set of specifications that turned out not at all to match the operational needs. The first successful ones were ad hoc temporary devices (e.g., UNITED) that worked just well enough to be improved.

Note that the requirement for fast and accurate inter-line communications, backed up by automatic commitments for seats and equipment was a much later development; it is, however, by now one of the most valuable and cost-effective facilities.

2.3 The IBM In-House Computing Net

Virtually all the on-line computers at IBM company installations world-wide are netted together by communication

facilities, making them, we believe, the largest net in the world. Admirable new functions exhibited by their systems are:

- 1) a modifiable macro command language,
- 2) a consistent, speedy and flexible data transmission/translation scheme.

3.0 The SAFE user community consists of Intelligence Community analysts covering the full spectrum of research into foreign political, military, economic, scientific, and technological activity. Their effective use of this system and, ultimately, the quality of intelligence they produce rest on whether their real needs can be identified and satisfied by the system. To that end, what actions will be taken to ensure that:

- 1) all elements of the intended user community are actually involved in the system's continuing development,
- 2) the broadest of the present analytical requirements are identified,
- 3) these present requirements can be validated by a consistent method,
- 4) the validated present requirements will be met,
- 5) modifications and new requirements can be accepted as they are identified,
- 6) all analytical users will acquire the necessary skills and familiarization with SAFE on an interim basis so they are ready to begin broad utilization when system IOC is reached,
- 7) this interim SAFE test-phase acquires continuing comprehensive experimental data on user experience with the system, and
- 8) the acquired data on user experience is actually utilized in the architecture and development of the system?

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4.0 How can the Agency make a reasonable evaluation of the current status of SAFE with major portions of the proposed operational capabilities either unspecified or uncommunicated to the Agency? For example,

- 1) the user command language and its parsing,
- 2) the user programming languages,
- 3) the user editing languages, and
- 4) procedures for backup, including regeneration, of derived files lost in crashes.

Note the above have to be prototypes capable of continuing responsive evolution, rather than final imposed prescriptions.

5.0 What actions are under way to insure that the Intelligence Community has access to CIA SAFE and that CIA SAFE has access to DIA SAFE as well as such systems as COINS and SOLIS?

The absence of appropriate linkages with other IC systems makes it highly probable that duplicate facilities and files will be acquired and constructed with higher costs and lessened capability for the total IC system. Provisions for such linkages should be built into SAFE from the start, otherwise it will be difficult if not impossible to backfit these linkages.

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6.0 How will SAFE deal with open source material? Will ☐ material, either finished publications or field reporting, be made available to the analyst through SAFE? How will SAFE deal with current newspaper and journal entries?

Several of the offices that will use SAFE, in particular OPA and OSWR, make extensive use of open source material. Their analytical efforts will be seriously hampered if their files do not include open source materials.

7.0 What steps are being taken to ensure that SAFE will be designed to allow collaborative usage?

Examination of other similar systems, such as Stanford University's SUMEX system or the internal IBM system, shows

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that user-to-user interactions comprise a significant fraction of the total use of these systems and greatly enhance the overall analytical capability of its users.

8.0 What steps are under way to ensure that in the procurement of major hardware items, these items will be compatible with existing Agency systems?

The Agency has made very substantial investment in ADP equipment that currently serves a wide variety of users. This investment should be capitalized on in order to enhance the future capabilities and particularly the flexibility of SAFE. If the interoperability of SAFE and existing ODP hardware is going to be dependent on software, then provisions should be made:

- 1) for the development of the needed software since it will be a major undertaking; and

- 2) for the establishment of evolving standards and protocols for interconnection.